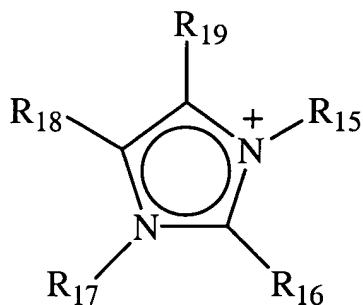
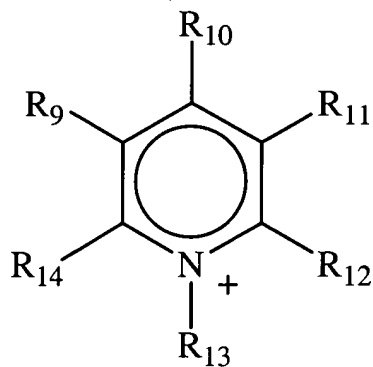
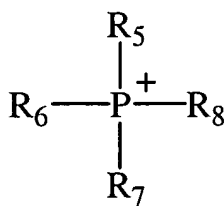
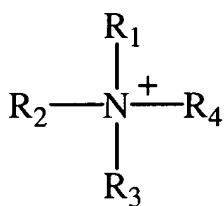


**In the Claims**

Please amend the claims as follows:

**THAT WHICH IS CLAIMED:**

1. (currently amended) A catalyst system comprising an ionic liquid dispersed on a porous support having an average pore diameter greater than about 225 Å; wherein said ionic liquid comprises a cation and an anion; and wherein said anion consists essentially of halides of elements selected from the group consisting of: Group 13 (IIIA) metals, zinc, iron and phosphorus, and combinations thereof.
2. (original) A catalyst system in accordance with claim 1 wherein said support has a surface area less than about 700 m<sup>2</sup>/gram.
3. (original) A catalyst system in accordance with claim 1 wherein said support is non-crystalline.
4. (currently amended) A catalyst system in accordance with claim 1 wherein said support is non-crystalline and has a surface area less than about 700 m<sup>2</sup>/gram; and wherein said anion consists of halides of elements selected from the group consisting of: Group 13 (IIIA) metals, zinc, iron and phosphorus, and combinations thereof.
5. (original) A catalyst system in accordance with claim 1 wherein said support is silica.
6. (currently amended) A catalyst system in accordance with claim 1 ~~wherein said ionic liquid comprises a cation and an anion;~~ wherein said cation is selected from the group consisting of ions defined by the formulas:



and combinations of any two or more thereof, wherein:

$\text{R}_1$ ,  $\text{R}_2$ ,  $\text{R}_3$ ,  $\text{R}_5$ ,  $\text{R}_6$ , and  $\text{R}_7$  are selected from the group consisting of saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule;

$\text{R}_4$ ,  $\text{R}_8$ ,  $\text{R}_9$ ,  $\text{R}_{10}$ ,  $\text{R}_{11}$ ,  $\text{R}_{12}$ ,  $\text{R}_{13}$ ,  $\text{R}_{14}$ ,  $\text{R}_{15}$ ,  $\text{R}_{16}$ ,  $\text{R}_{17}$ ,  $\text{R}_{18}$ , and  $\text{R}_{19}$  are selected from the group consisting of saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule, and hydrogen; ~~and~~

\_\_\_\_\_ wherein said anion is selected from the group consisting of halides of: Group IIIA metals, copper, zinc, iron and phosphorus.

7. (currently amended) A catalyst system in accordance with claim 6 wherein said anion is selected from the group consisting of  $\text{AlCl}_4^-$ ,  $\text{Al}_2\text{Cl}_7^-$ ,  $\text{Al}_3\text{Cl}_{10}^-$ ,  $\text{GaCl}_4^-$ ,  $\text{Ga}_2\text{Cl}_7^-$ ,  $\text{Ga}_3\text{Cl}_{10}^-$ ,  ~~$\text{CuCl}_2^-$ ,  $\text{Cu}_2\text{Cl}_3^-$ ,  $\text{Cu}_3\text{Cl}_4^-$~~ ,  $\text{ZnCl}_3^-$ ,  $\text{FeCl}_3^-$ ,  $\text{FeCl}_4^-$ ,  $\text{Fe}_3\text{Cl}_7^-$ ,  $\text{PF}_6^-$ , and  $\text{BF}_4^-$ .

8. (original) A catalyst system in accordance with claim 6 wherein said ionic liquid has the formula  $\text{R}_1\text{R}_2\text{R}_3\text{NH}^+\text{Al}_2\text{Cl}_7^-$ .

9. (original) A catalyst system in accordance with claim 6 wherein said ionic liquid has the formula  $(\text{CH}_3)_3\text{NH}^+\text{Al}_2\text{Cl}_7^-$ .

10. (currently amended) A catalyst system in accordance with claim 1 wherein a Group 8-10 (VIII) metal compound is dispersed in said ionic liquid.

11. (currently amended) A catalyst system in accordance with claim 10 wherein said Group 8-10 (VIII) metal compound comprises a platinum compound.

12. (withdrawn) A process comprising:

a) contacting, under conversion conditions, a hydrocarbon feed stream comprising a  $\text{C}_5$  paraffin and an initiator with a catalyst system comprising an ionic liquid dispersed on a support; and

b) withdrawing a product stream comprising a  $\text{C}_4$  paraffin and at least one  $\text{C}_6$  paraffin.

13. (withdrawn) A process in accordance with claim 12 wherein said support has an average pore diameter greater than about 225 Å.

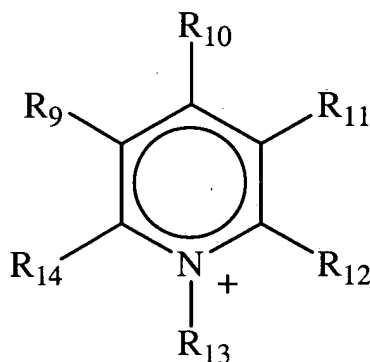
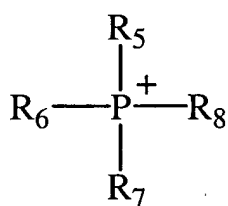
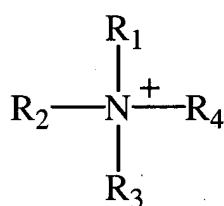
14. (withdrawn) A process in accordance with claim 12 wherein said support has a surface area less than about 700 m<sup>2</sup>/gram.

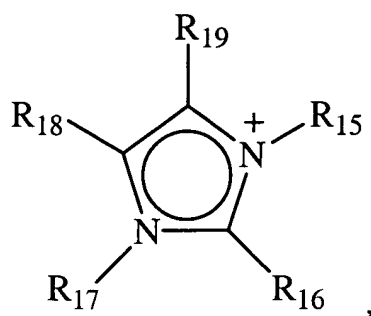
15. (withdrawn) A process in accordance with claim 12 wherein said support is non-crystalline.

16. (withdrawn) A process in accordance with claim 12 wherein said support is non-crystalline, has an average pore diameter greater than about 225 Å, and has a surface area less than about 700 m<sup>2</sup>/gram.

17. (withdrawn) A process in accordance with claim 12 wherein said support is silica.

18. (withdrawn) A process in accordance with claim 12 wherein said ionic liquid comprises a cation and an anion; wherein said cation is selected from the group consisting of ions defined by the formulas:





and combinations of any two or more thereof, wherein:

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_5$ ,  $R_6$ , and  $R_7$  are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule;

$R_4$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{13}$ ,  $R_{14}$ ,  $R_{15}$ ,  $R_{16}$ ,  $R_{17}$ ,  $R_{18}$ , and  $R_{19}$  are selected from saturated and unsaturated hydrocarbons containing from 1 to 7 carbon atoms per molecule, and hydrogen; and

wherein said anion is selected from the group consisting of halides of: Group IIIA metals, copper, zinc, iron and phosphorus.

19. (withdrawn) A process in accordance with claim 18 wherein said anion is selected from the groups consisting of  $AlCl_4^-$ ,  $Al_2Cl_7^-$ ,  $Al_3Cl_{10}^-$ ,  $GaCl_4^-$ ,  $Ga_2Cl_7^-$ ,  $Ga_3Cl_{10}^-$ ,  $CuCl_2^-$ ,  $Cu_2Cl_3^-$ ,  $Cu_3Cl_4^-$ ,  $ZnCl_3^-$ ,  $FeCl_3^-$ ,  $FeCl_4^-$ ,  $Fe_3Cl_7^-$ ,  $PF_6^-$ , and  $BF_4^-$ .

20. (withdrawn) A process in accordance with claim 18 wherein said ionic liquid has the formula  $R_1R_2R_3NH^+Al_2Cl_7^-$ .

21. (withdrawn) A process in accordance with claim 18 wherein said ionic liquid has the formula  $(CH_3)_3NH^+Al_2Cl_7^-$ .

22. (withdrawn) A process in accordance with claim 12 wherein said hydrocarbon feed stream comprises at least 50 weight-% isopentane, based on the total weight of said hydrocarbon feed stream.

23. (withdrawn) A process in accordance with claim 12 wherein said hydrocarbon feed stream comprises in the range of from about 50 to about 95 weight-% isopentane, based on the total weight of said hydrocarbon feed stream.

24. (withdrawn) A process in accordance with claim 12 wherein said hydrocarbon feed stream comprises in the range of from about 80 to about 98.5 weight-% isopentane, based on the total weight of said hydrocarbon feed stream.

25. (withdrawn) A process in accordance with claim 12 wherein said conversion conditions include a temperature in the range of from about 100°F to about 1000°F.

26. (withdrawn) A process in accordance with claim 12 wherein said conversion conditions include a temperature in the range of from about 140°F to about 250°F.

27. (withdrawn) A process in accordance with claim 12 wherein said conversion conditions include a temperature in the range of from about 150°F to about 220°F.

28. (withdrawn) A process in accordance with claim 12 wherein said C<sub>4</sub> paraffin of said product stream is isobutane and said C<sub>6</sub> paraffin of said product stream is a hexane isomer.

29. (withdrawn) A process in accordance with claim 12 wherein said initiator is selected from the group consisting of: 1) an olefin having in the range of from 2 to 20 carbon atoms per molecule, 2) an alkyl halide wherein said alkyl halide has in the range of from 2 to 20 carbon atoms per molecule, and combinations thereof.